

DIRECTIONS: Simplify.

$$1. \frac{3}{x-5} - \frac{6x}{x^2-25}$$

$$2. \frac{2}{x+3} - \frac{x}{x-1} + \frac{x^2+2}{x^2+2x-3}$$

$$3. \frac{3}{4m^2n^2} + \frac{7}{8mn^5}$$

$$4. \frac{1-\frac{2}{3x}}{x-\frac{4}{9x}}$$

$$5. \frac{1+x^{-1}}{1-x^{-2}}$$

DIRECTIONS: Solve. Check for extraneous roots.

$$6. x + \frac{6}{x} = 5$$

$$7. \frac{2}{x-1} = \frac{3}{x+1}$$

$$8. \frac{3}{y-2} - \frac{2y}{y^2-4} = \frac{5}{y+2}$$

$$9. \frac{2x-1}{15} \leq \frac{5}{3}$$

DIRECTIONS: Solve. Be sure to label your answers.

- 10.** Deanna can paint the outside of a house in 12 hours. Benito can paint the same house in 15 hours. How long would it take them working together to paint the house?
- 11.** If one half of a number is 10 less than two thirds of the number, what is the number?
- 12.** Dr. Bunsen Honeydew wants to obtain 400 mL of a 5% solution of acetic acid by mixing 2% and 10% solutions of acetic acid. How much of each solution should be used?